

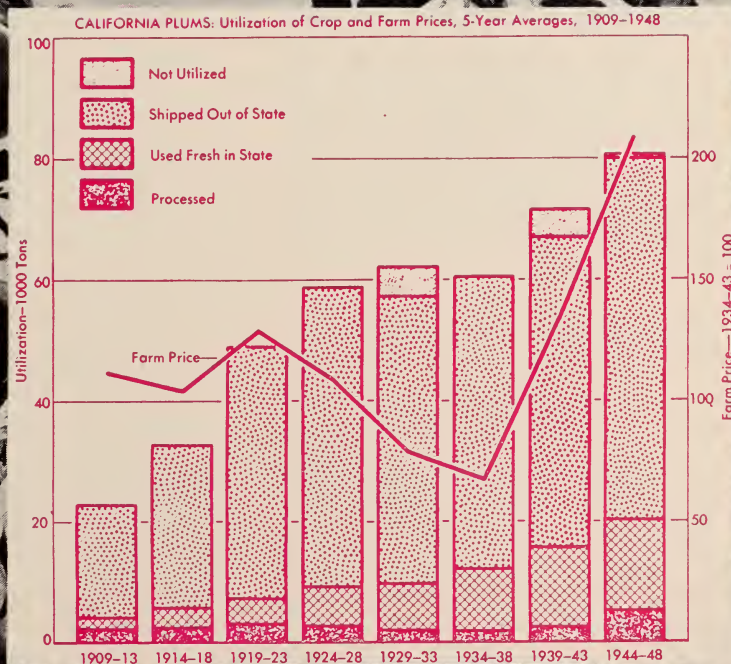
CALIFORNIA PLUMS

ECONOMIC STATUS, 1950

Jerry Foytik

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CALIFORNIA AGRICULTURAL EXPERIMENT STATION
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The California plum industry

has undergone important changes during the past 30 years. This circular reviews the factors responsible for these changes and indicates the situation in prospect.

Here is the situation

Acreage . . expanded rapidly until 1929, declined during the 1930's, increased gradually since 1942. Now there are more trees in the San Joaquin Valley, in the older ages, and in the 4 major varieties.

Yield . . remained at 2 tons per acre until 1935, increased rapidly to 3½ tons thereafter. Yield varies widely from year-to-year, between varieties, and district-to-district.

Production . . increased because of expanding acreage until 1930, and because of increasing yield since 1935.

Marketings . . are largely limited to fresh consumption; sales almost equally divided between the California market, other private sales (including exports) the New York auction, all other auctions. Sale of 4 varieties expanded from 15 to 60 per cent of the total.

Grower prices . . are lower for local than for interstate fresh sales—still lower for processing. Average price seems to be determined by consumer purchasing power and to lesser extent by available supplies of plums and other fruits.

This is the outlook

A further increase of 20 per cent in bearing acreage is indicated for the immediate future. Expansion will center in San Joaquin Valley; will be large for Beauty, Santa Rosa, Duarte, and President varieties.

If good cultural practices (now being employed) are not abandoned, a yield of almost 4 tons per acre seems likely.

Probable changes in acreage and yield point to a crop of 80,000 to 100,000 tons per year, depending on weather.

Unless processing can be expanded entire crop will continue to be used fresh. Relatively more plums will be sold at California markets and earlier in season, before other fruits become plentiful. Increased sales from San Joaquin Valley, smaller shipments from Sacramento Valley are indicated.

Course of prices for years ahead can not be charted. Price reductions are suggested by increased production of plums and other fruits. If consumer purchasing power continues at present high level, or goes higher, this danger may not develop.

The Author:

Jerry Foytik is Assistant Professor of Agricultural Economics and Assistant Agricultural Economist in Agricultural Experiment Station and on the Giannini Foundation.

CALIFORNIA PLUMS

Economic Status, 1950

California plums are used chiefly for fresh consumption, mainly in the heavily populated industrial region of the north central and northeastern states. They account for 30 per cent of the fresh deciduous tree fruits shipped from the state. In the United States commercial production of plums is confined principally to a few specialized producing areas in California and to about 16 major varieties. These varieties show striking differences in tree growth and productiveness, in physical characteristics and in consumer acceptance. Plums are marketed in a staggered fashion throughout the season (May–September) in accordance with progressively later maturity dates of the successive varieties. Since 1933 the industry has turned to compulsory programs for marketing its crop. Regulations of out-of-state plum shipments, resembling restrictions employed under federal legislation for other specialty commodities, have been promulgated during most seasons of the past sixteen years, exclusive of the war period.

Will the shifts in geographic location and varietal composition of plum acreage and the recent trend toward higher yields raise production and fresh shipments to higher levels in the immediate future? Will it pay to plant additional acreage and, if so, what varieties will prove most

profitable? Questions such as these are important to those who are interested in growing and handling plums. Definite answers cannot be given. Yet, by considering past shifts and current trends, intelligent projections for the future can be made for several of the factors affecting prices. Demand, which depends largely on the probable level of consumer purchasing power, cannot be estimated with any degree of assurance.

It may be well to clarify the meaning intended by the commodity designated as a “plum.” Originally, “prune” and “plum” were used to name the fruit of many hundred varieties comprising several different species. A distinction in meaning evolved gradually and is currently recognized by the industry. “Prune” designates a variety which can be and normally is dried without removal of the pit. The term refers to both the fruit in its fresh state and to the dried product. “Plum” specifies a variety grown primarily for other uses—i.e., for fresh use, canning, freezing, crushing, and jam- and/or jelly-making. The “fresh prune,” which is produced extensively in the Pacific Northwest, is equally well-suited and has been utilized in substantial volume for fresh use, canning, and drying. Throughout this circular these terms will be used in the sense indicated.

Here is the production and utilization picture

Production. Plums can be grown successfully in most fruit-producing areas because the many different varieties have varying growth habits and widely different requirements as to moisture, climate, and soil conditions. In practice, however, the conditioning influence of these and other factors has limited commercial pro-

duction in California to the interior valleys of the central portion of the state and to the surrounding foothill regions. The Placer and lower San Joaquin Valley districts, each producing about two-fifths of the crop, are the important plum growing sections. Substantial quantities are also produced in the Sacramento River

area—that is, in Sacramento, Solano, and San Joaquin counties. The remaining production is grown either in regions adjacent to these major districts or, on a limited scale, elsewhere in the state in conjunction with the production of other fruits.

Production has been restricted primarily to some fifteen or twenty varieties in greatest demand for fresh consumption. At this point it is well to distinguish between the Japanese and European varieties. The former—represented by such varieties as Beauty, Santa Rosa, Wickson, Duarte, and Kelsey—are typically medium to large in size, heart-shaped, and usually crimson or red (but never blue or purple) in color. They are early bloomers and have the advantage of being marketed early in the season before the main avalanche of summer fruits arrives. Most European plums (such as Tragedy, Sugar, and President varieties) are smaller in size, roundish or oval in shape, and usu-

ally blue or purple in color—though the important canning plums, which are European varieties, are yellow and often large.

A substantial portion of the production of fresh prunes from the Pacific Northwest—equal to about half the California plum crop—is marketed fresh just as the plum season draws to a close. Michigan is the only other state which produces plums on a commercial scale. Its small crop, averaging 5,000 tons, is utilized primarily for jam- and jelly-making. In addition small quantities of California prunes occasionally are consumed in fresh form.

Except during the late 1920's and the 1930's (while the average crop remained at approximately 60,000 tons), production of California plums increased steadily by about 2,500 tons per year. Figure 1 indicates that this upward trend in production was primarily the result of increases in bearing acreage until about

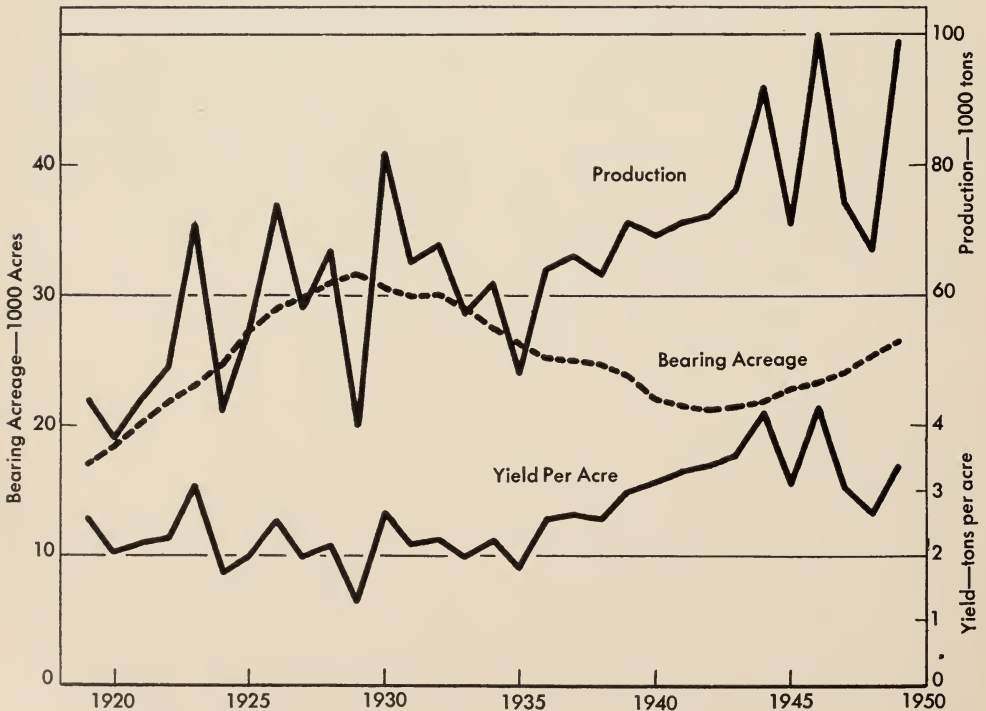


Fig. 1. Production, Bearing Acreage and Yield, California Plums, 1919 to 1949.

1930, and of a sharp increase in yield since 1935. Annual variations in production are due largely to changes in yield, the result of fluctuations in weather. Such short-run changes are fairly large, amounting to as much as 20 per cent from the average in one year out of five. Thus, during an average decade, extreme weather conditions result in one crop being more than 20 per cent above "normal" and another at least 20 per cent below "normal."

For a complete explanation of changes in production it is necessary to examine the factors producing the variations indicated in figure 1. This requires a study of varietal and geographical shifts in acreage, changes in the age of trees in bearing acreage, modifications in cultural practices, and changes in grower returns. To make suitable estimates of probable future production consideration must be given to these factors rather than a simple projection of the individual trends of acreage and yield.

The above changes will be discussed in detail later in this circular. Meanwhile we are able to state the main conclusion to be reached: a continued upward trend in production for the immediate future is indicated by present acreage and probable trends in yield. Within a few years an average crop of 100,000 tons is indicated. It is well to bear in mind the assumptions upon which this projection is based:

1. Good cultural practices will be continued in the principal producing areas, even if prices decline.

2. Tree removal will be confined primarily to the less productive varieties and will be considerably less than during the 1930's.

3. Yield per acre will increase because more of the bearing trees will be at or near full production, bearing acreage in San Joaquin Valley (where yields are higher) will increase relative to that in other areas, and bearing acreage in all

districts will shift to the more productive varieties.

Utilization. California plums are used chiefly for fresh consumption within the state and in the central and eastern states. Since 1909-1913 the quantity marketed fresh rose from about 90 to over 97 per cent of the harvested crop. Although most plums are sold at markets outside California, local sales are increasing in relative importance. Only small quantities are processed. Quantities not utilized were negligible until the depression of the 1930's but have been substantial during about half of the years since 1931. Data showing the utilization of the California plum crop for 1909-1948 are tabulated in table 1 on page 6.

Canning, the only important processing outlet during normal times, uses only a small quantity of plums, and is largely limited to green or yellow varieties (especially Green Gage, Jefferson, Washington, and Yellow Egg) which are not produced for fresh shipment to eastern markets. During the entire period since 1909 the amount sold to canners fluctuated between 1,000 and 4,000 tons, with an average of about 2,000 tons. An additional 5,200 tons of plums were frozen or crushed for remanufacture into jams and jellies, on the average, during 1943-1946 when government requirements for these products were very large and berry production was small. These circumstances no longer exist and plums are not now used for these purposes.

The proportion of fresh sales absorbed by intrastate markets remained at 10 per cent until about 1930 but increased steadily thereafter to the current figure of 20 per cent. This shift corresponds closely to the rapid population growth in California. Per-capita consumption at both local and eastern markets doubled during the past forty years and continues to be about four times greater in California than in the rest of the country.

As a result fluctuations in harvested production are paralleled closely by

Table 1. Production and Utilization of California Plums, 1909–1948.

| Five-year average | Production, total* | Quantities utilized for: | | | | | |
|--------------------|--------------------|--------------------------|------------------|--------------|-------------|---------|-------------------|
| | | All sales | Fresh marketings | | | Canning | Other processing† |
| | | | Total | Out-of-state | Intra-state | | |
| Tons, fresh weight | | | | | | | |
| 1909-1913 | 23,000 | 22,800 | 20,600 | 18,600 | 2,000 | 2,200 | ..... |
| 1914-1918 | 33,400 | 33,200 | 30,800 | 27,400 | 3,400 | 2,400 | ..... |
| 1919-1923 | 49,200 | 49,000 | 45,900 | 41,700 | 4,200 | 3,100 | ..... |
| 1924-1928 | 59,000 | 58,800 | 56,100 | 49,600 | 6,500 | 2,700 | ..... |
| 1929-1933 | 62,400 | 57,300 | 55,400 | 47,600 | 7,800 | 1,900 | ..... |
| 1934-1938 | 60,600 | 60,300 | 58,500 | 48,300 | 10,200 | 1,800 | ..... |
| 1939-1943 | 71,800 | 66,900 | 64,400 | 51,200 | 13,200 | 1,200 | 1,300 |
| 1944-1948 | 80,800 | 79,900 | 74,700 | 59,700 | 15,000 | 2,200 | 3,000 |

* Difference between total production and all sales consists of small amounts used directly by the farm household (200 tons per year until 1930 and 300 tons thereafter) and quantities not utilized for the period since 1931.

† Includes quantities frozen and crushed which were negligible until 1942 and were not reported separately.

changes in fresh marketings, particularly of plums shipped to out-of-state markets. As stated, production is likely to average 100,000 tons within the immediate future. Unless processing is increased very materially—which appears very unlikely—fresh consumption, both locally and at eastern markets, must be expanded to

absorb 20 per cent more plums than the average for recent years. This situation will be particularly pressing if favorable weather helps to produce a bumper crop. Such a large quantity available for fresh sale may create a serious surplus problem—unless consumer purchasing power continues at or above current high levels.

Both acreage and yield have undergone some changes

Acreage. Information on plum acreage for the period preceding World War I is incomplete. But production and utilization figures for these years suggest that acreage increased substantially during several decades before 1919. Bearing acreage almost doubled during the 1920's, declined substantially from 1930 to 1942, and increased gradually since 1942. The present bearing acreage (26,600 acres in 1949) is 15 per cent below the 1929 peak (31,600 acres) and 25 per cent above the low level (of 21,200 acres) for 1942. Half of the 33 per cent reduction between 1929

and 1942 has been offset by recent additions. Important changes in the varietal, age, and geographical distribution of the total acreage have occurred and continue to take place. Fortunately, detailed acreage data have been collected by the California Cooperative Crop and Livestock Reporting Service for the period since 1936. The changes indicated for this period are of interest since they have a strong influence on future production.

Attention may be focused on the main recent changes by considering the 1936–1946 period as 2 five-year intervals. Dur-

ing this decade reductions in acreage were confined mainly to the first five-year interval; increases were concentrated mostly to the second period. At the end of this decade acreage was only a few hundred acres greater than at the beginning. However, significant shifts occurred among the varieties represented, in the geographical distribution of acreage, and in the age composition of trees.

When large reductions in acreage are made, trees of the less profitable varieties are usually removed, particularly in the older plum-growing districts. An expansion in acreage, on the other hand, tends to consist of plantings of the more desirable varieties, especially in sections where higher yields prevail. Figure 2 shows the significant shifts in varietal and geographical composition of plum acreage which took place between 1936 and 1946.

Examination of this chart shows that during 1936-1946 two changes of considerable importance took place:

1. Acreage in San Joaquin Valley expanded considerably (40 per cent). This increase was offset by reductions of 10 and 30 per cent in Placer District and in Sacramento Valley, respectively.

2. A large increase in acreage planted to early varieties occurred in San Joaquin Valley, whereas acreage of these varieties decreased by a considerably smaller amount in the other two important producing areas.

San Joaquin Valley acreage remained constant between 1936 and 1941 and expanded by 40 per cent over the next five years. For the other districts considered as a whole a sharp reduction of 22 per cent (about 4,200 acres) during the first five-year interval was followed by a moderate increase of 2,200 acres. As a result of these changes in the geographical distribution of plum trees, the proportion of the plum acreage located in San Joaquin Valley rose from 29 to 41 per cent of the total within a span of ten years.

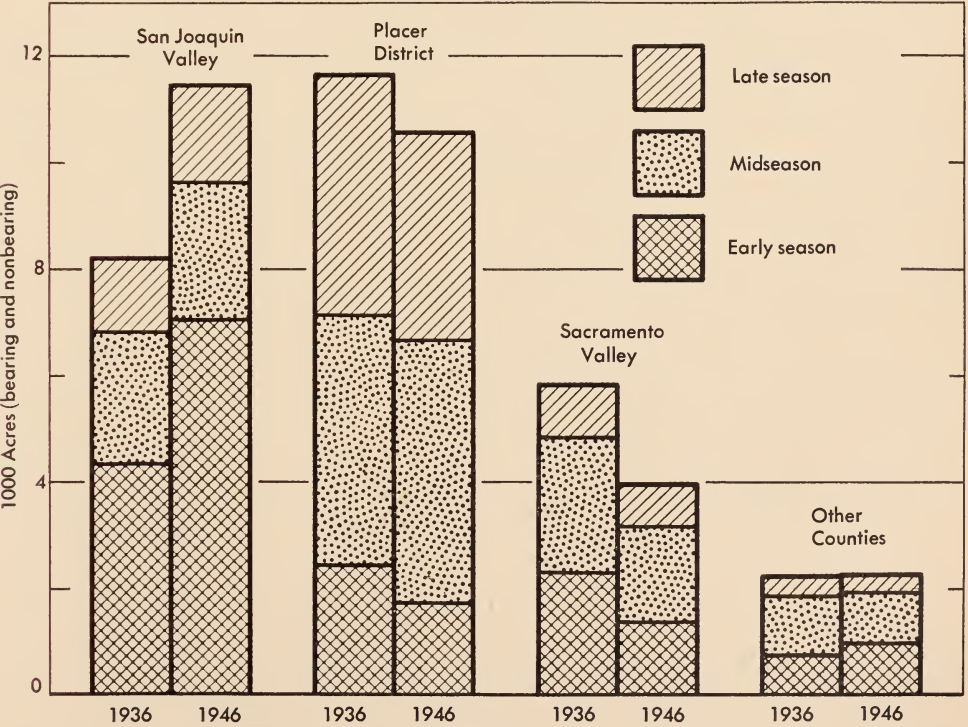


Fig. 2. Varietal Classification of California Plum Acreage by Major Districts, 1936 and 1946.

Acreage declined from 21 to 14 per cent in the Sacramento Valley, and from 42 to 37 per cent in Placer District and continued at 8 per cent for the balance of the state.

A similar pattern is apparent in the case of varietal changes. Acreage of the three early varieties (Beauty, Santa Rosa, and Climax) increased 65 per cent (from 4,300 to 7,100 acres) in San Joaquin Valley and declined by 25 per cent (from 5,500 to 4,100 acres) in the other districts. For late plums (Duarte, Kelsey, President, and Grand Duke) and mid-season varieties (including minor varieties) acreage did not change appreciably.

About three-quarters of the increase in San Joaquin acreage during 1936–1946 was due to a doubling in the acreage of Santa Rosa plums. In addition, acreage was increased substantially for Beauty and Duarte plums and to a lesser extent for President and minor varieties. It decreased in the case of the “six other varieties” enumerated separately (see table 2). In the other districts a small increase

in acreage of Santa Rosas only partly offset the large reduction for other early varieties. Acreage of other plums was decreased somewhat, especially for mid-season varieties in Sacramento Valley. These changes are brought out in more detail in table 2. The four varieties shown individually are the only varieties (of the ten enumerated separately by the Crop Reporting Service) with significant acreage increases after 1941.

Age of Trees. While the industry was expanding, almost one third of the total acreage consisted of nonbearing trees. The proportion declined after 1923 and averaged only 11 per cent during the 1930's. Because of an increase in plantings since the early 1940's, the proportion of nonbearing trees has increased again. With tree removals at a low level during the past ten or fifteen years, the proportion of older bearing trees has increased so that in 1946 half of the acreage consisted of trees 17 years or more since planting.

During this period the proportion of young bearing trees declined from 57 to

Table 2. Acreage of California Plums,* 1936, 1941, and 1946.

| Variety | State total | | | San Joaquin Valley† | | Other districts | |
|-----------------------|--------------------------------------|--------|--------|---------------------|--------|-----------------|--------|
| | 1936 | 1941‡ | 1946 | 1936 | 1946 | 1936 | 1946 |
| | Acres (total bearing and nonbearing) | | | | | | |
| Santa Rosa..... | 5,080 | 5,300 | 7,880 | 2,850 | 5,330 | 2,230 | 2,550 |
| Beauty..... | 3,390 | 2,370 | 2,640 | 1,080 | 1,510 | 2,310 | 1,130 |
| Duarte..... | 1,900 | 1,900 | 2,670 | 110 | 570 | 1,790 | 2,100 |
| President..... | 2,830 | 2,260 | 2,530 | 530 | 740 | 2,300 | 1,790 |
| Four listed varieties | 13,200 | 11,830 | 15,720 | 4,570 | 8,150 | 8,630 | 7,570 |
| Six other varieties§ | 9,120 | 6,300 | 6,130 | 2,670 | 2,130 | 6,450 | 4,000 |
| All other varieties.. | 5,640 | 5,690 | 6,430 | 960 | 1,180 | 4,680 | 5,250 |
| All varieties..... | 27,960 | 23,820 | 28,280 | 8,200 | 11,460 | 19,760 | 17,820 |

* Does not incorporate the recent revisions in acreage data made by the California Crop and Livestock Reporting Service since only state totals were changed—and not substantially.

† Includes Fresno, Kern, Kings, Madera, San Joaquin, Stanislaus, and Tulare counties.

‡ The 1941 acreage includes 8,240 acres in San Joaquin Valley and 15,580 acres in other districts.

§ Includes Burbank, Climax, Grand Duke, Kelsey, Tragedy, and Wickson varieties.

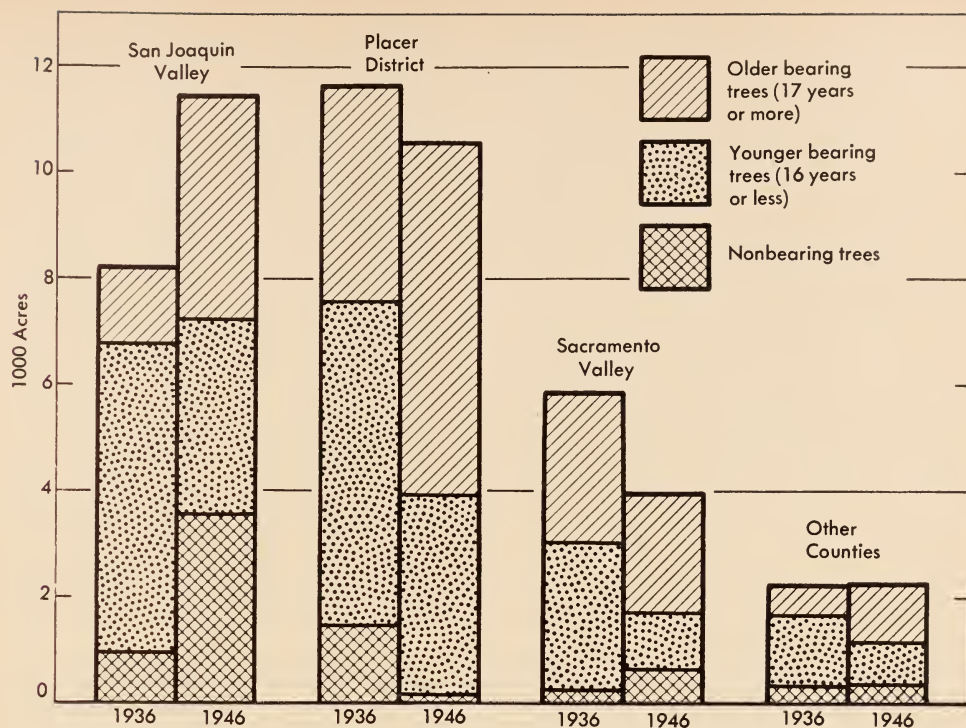


Fig. 3. Age Classification of Plum Acreage by Major Districts, 1936 and 1946.

32 per cent of the total acreage. At present a large proportion of the acreage located in San Joaquin Valley and of that planted to the four major varieties (Beauty, Santa Rosa, Duarte, and President) consists of younger trees, including large numbers of nonbearing trees. On the other hand, plum trees in the other districts and of the less important varieties are much older and include only small numbers of nonbearing trees.

The shift in the age composition of plum acreage occurring during 1936-1946 is shown in figure 3. The most significant change is the large increase in nonbearing acreage in San Joaquin Valley. In this region new acreage has been planted on an extensive scale whereas only a small number of bearing trees have been removed from production. At the present time the total acreage is almost equally divided between nonbearing, young bearing, and old bearing trees. For the remainder of the state the distribution

of acreage among these age categories is 7, 33, and 60 per cent, respectively.

The bulk of the 1946 nonbearing acreage (75 per cent of the total) was located in San Joaquin Valley and included 3,000 acres of the four major varieties and 500 acres of all other plums. The balance of the nonbearing acreage (located largely in Sacramento Valley) consisted of 60 per cent planted to the four major varieties and 40 per cent to all others. Over half of this nonbearing acreage was planted to Santa Rosas, 10 per cent to Beauty plums, and 20 per cent to Duarte and President varieties. The remaining 20 per cent consisted of varieties other than these four.

These variations in the age composition of plum acreage, when considered against the background of other changes, have an important influence on realized yield. And, aside from any indirect effects operating through differences in yield, they have a significant bearing on

changes in the varietal composition and geographical sources of plum supplies during the next few years. Unless elimination of trees follows a pattern substantially different from that experienced in the past, by selecting reasonable assumptions with respect to plantings and tree removals, it is possible to forecast the acreage of old and new bearing trees in prospect 3 years hence.

By 1953 the current nonbearing acreage (of over 3,000 acres), if still standing, will be of bearing age and the 2,000 acres now remaining from plantings made during 1933-1936 will have shifted from the younger to the older tree classification. If tree removals continue to be small during the next few years, less than 1,000 acres of older trees will be taken from production by 1953. On this basis—which appears plausible—the total bearing acreage will increase by over 2,000 acres (to almost 29,000 acres). The increase will be almost equally divided between young and old bearing trees.

About three-quarters of the new bearing, less than half of the shift from young to old bearing trees, and only a small part of the tree removals are expected to occur in San Joaquin Valley. It appears likely, therefore, that within a few years the bearing acreage in this region will increase substantially (possibly by about 25 per cent). Over half of these bearing trees will still be under seventeen years old, and consequently capable of producing heavy yields. For the remainder of the state it is expected that total bearing acreage will not change appreciably and that two-thirds of the bearing trees will continue in the seventeen-years-and-over category. About half the increase in bearing acreage in prospect for the entire state during the immediate future probably will consist of Santa Rosa plums, mostly in San Joaquin Valley. Most of the remainder will be accounted for by Beauty, Duarte, and President plums. A further decline in the bearing acreage of several

varieties is indicated since tree removals (and possibly top working to other varieties) will exceed new plantings.

Yield. Figure 1 shows that the trend in average yield during the past decade is sharply different from that of the preceding twenty years. Yield fluctuated about an average of 2 to 2¼ tons per bearing acre for the period ending with 1935 and increased rapidly thereafter to about 3½ tons. In view of the low yield (relative to the trend) experienced in 1947 and 1948 and the high yields during the immediately preceding years, it is difficult to indicate the probable yield for the next few years. When due allowance is made for shifts in the varietal, geographical, and age distribution of plum acreage, however, a figure of 3.5 to 4.0 tons appears to be a reasonable estimate for the immediate future.

The long-run movement in yield is determined by forces other than weather. The most important of these factors are the varietal composition and geographical location of the bearing acreage, the proportion of trees at or near full maturity, and the cultural practices followed. Although the extent to which each affects yield is not known, the significance of their combined influence is shown by the rapid increase in average yield during recent years.

Some varieties are more productive and more regular bearers (when properly pollinated) than others. In some cases yields differ by as much as a factor of 2 or 3. The Japanese varieties generally come into bearing and reach full production at much earlier ages than do European plums. The flat, fertile lands of the San Joaquin Valley, in addition to producing larger sizes of individual fruit, give a higher yield per acre than the hilly areas of Placer District. It has been estimated that the usual yield for good commercial orchards averages about 8 to 10 tons in lower San Joaquin Valley, 4 to 5 tons in San Joaquin County, 4 tons in the

Placer District, and 2 tons in Solano County. These yields are averages for actual varieties being produced and reflect varietal and age as well as geographical differences in yield. It is not possible to indicate by how much yields actually do vary at different ages, for different varieties, and in different districts because the information has not been gathered on this basis.

Rootstocks, depth of soil, fertilization and irrigation practices, pruning and thinning, control of diseases, number of trees planted per acre, and similar factors exert a considerable influence on yield. It may be presumed that over the years cultural practices have improved and that

the better practices currently in use are tending to increase average yields.

Probably these improved practices will be continued unless prices fall so low that expenditures in this direction become prohibitive. But even if this happens, the better care of trees taken during recent years will continue to have some beneficial effect, though with decreasing amplitude, on yields of the immediate future.

In view of these considerations, plus the changes in varietal and geographical distribution and the age classifications of the trees outlined above, an average yield of 3.5 to 4.0 tons per bearing acre within the next few years can be expected.

Fresh interstate shipments use the bulk of the crop

Preparation and Handling. Plums are perishable and undergo profound changes after being harvested. As the plums ripen, their flesh softens and ultimately becomes overripe. Since overripe and wasty plums in the retail bin, even when of good flavor, are not profitable, wholesalers and retailers prefer firmer, i.e., greener, plums which hold up better during numerous rehandlings. The more mature plums, although requiring more careful handling to avoid bruising, have a better flavor. It is clear that the first problem encountered in shipping plums is that of determining just when the fruit should be picked to combine suitable carrying and handling character with good dessert quality. In addition, proper packing, careful handling, and prompt precooling and transportation are necessary.

Although ranch packing is still practiced, it has been largely replaced by central houses, which are equipped to handle the fruit rapidly and to cool it as soon as possible after harvest. Today shipping agencies usually collect the plums from various producers, pack them, assemble the cars, and make shipments and sales. After considerable experimentation the

standard four-basket crate has been found to be the most satisfactory container for shipping plums to distant markets with a minimum of bruised and cut fruit. About 95 per cent of the plums shipped from California are packed in this crate. Some large size plums are shipped in peach boxes. Occasionally, the lug container is still used, especially for the very small sizes.

Each of the four baskets in the crate contains three layers of plums of approximately uniform size, separated by paper skims. The number of plums packed in a basket depends upon their size. Because the baskets taper toward the bottom, the lower layer usually is packed with one fewer rows than the middle and top layers. The number of plums contained in the upper layer is used to designate size. Thus a 4×5 size marking means that the middle and top layers each contain 20 plums (five rows of four plums each) while the bottom layer contains 16 plums. This gives a count of 56 plums per basket or 224 per crate. Similarly a 5×5 designation means 70 plums in each basket (25, 25, and 20 in the three layers), that is, 280 per crate. In other words, the larger

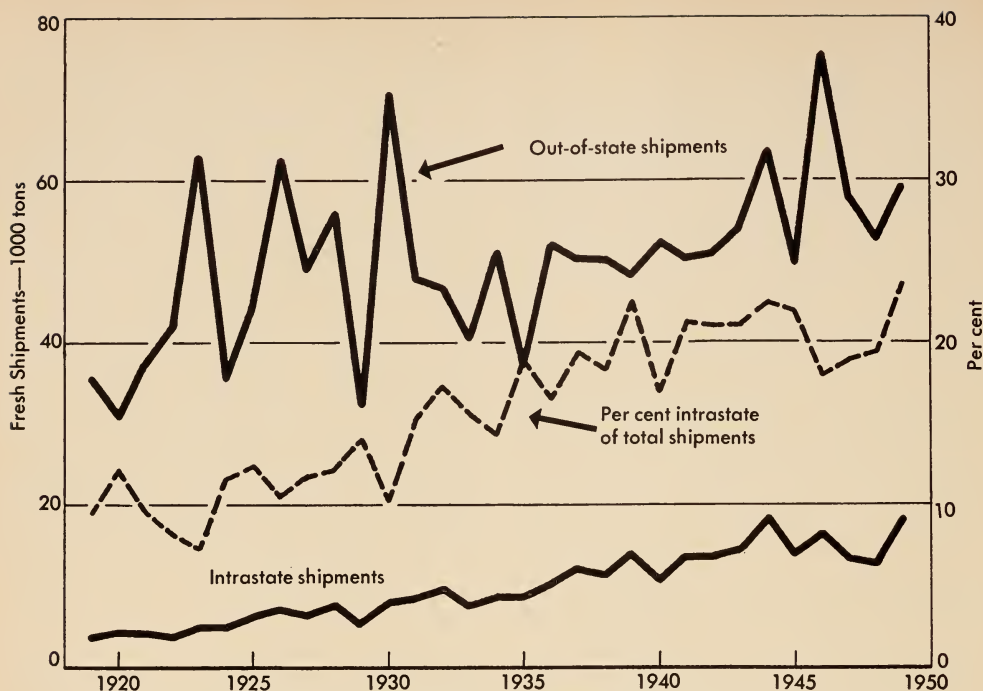


Fig. 4. Out-of-state and Intrastate Fresh Shipments of California Plums 1919 to 1949.

the size designation (for example, 5×5 compared to 4×5), the smaller the individual plums.

Eastern shipments are made almost entirely by railroad. Although some straight cars are loaded, the bulk of these shipments consists of several varieties. Not infrequently, plums are shipped in mixed cars with other fruits (especially peaches and pears). The market, however, prefers not to receive many small lots of ten to twenty crates each. As a consequence, there has been a definite tendency to ship only a few varieties in each car and this is one of the factors leading to a reduction in the number of varieties being produced for shipment to out-of-state markets.

During recent years much criticism has been directed toward the large distributive margins and possible inefficiencies in the marketing process. Actually, however, very little information is available to show just what this margin is, what the costs of distribution are, how thoroughly consumers are supplied, and what economies might be effected. Many im-

provements, for example, in transportation, have been introduced to reduce fruit losses and to make the handling of more mature fruit possible. Still there is a real need for securing faster movement, better equipment, and lower costs.

The following is a discussion of the source and destination of shipments to out-of-state markets and of their varietal and size composition since such supplies normally constitute the major portion (about 80 per cent) of the entire California plum crop.

Total Shipments. The significance of out-of-state shipments to California plum producers is shown by figure 4. Shipments from the state increased steadily (except during the decade of the 1930's) from 20,000 tons for 1909–1913 to 60,000 tons for recent years. Sales of fresh plums within California increased more rapidly—from 2,000 to 15,000 tons during this period. As a result, the proportion of fresh marketings represented by local sales rose from 10 to 20 per cent of the total during the past four decades.

While adequate information on the geographical pattern of plum consumption is not available, a general indication of the distribution of shipments can be secured by tabulating unload data and by compiling information from shippers' manifests—summarized in table 3. These figures are not completely satisfactory because they have not been corrected for diversions made after the shipment is started on its way to eastern markets. (It is common practice to bill a car to Omaha, Des Moines, or some other intermediate point and then route it to its final destination a few days later depending on the shipper's "feel of the market.") Information on unloads is limited to data compiled at 66 cities and therefore is also incomplete.

However, these statistics do show that the bulk of the interstate shipments is destined for markets in the northern states, primarily the industrial region extending from Chicago to New York City.

About 85 per cent of the total is sold in these markets. Shipments to southern markets averaged 150 cars until 1940 and increased to over twice this amount during recent years. Western states other than California receive 100 to 150 cars annually. Exports, principally to Canadian markets, have been increasing and averaged almost 400 cars, or 10 per cent of the total, during the past decade.

Shipment by Districts. Out-of-state shipments of California plums vary considerably by districts with respect to both seasonal movement and trend in total shipments. One-quarter of the plums from San Joaquin Valley are shipped by June 15, one-half by June 26, three-quarters by July 15 and the remaining quarter after mid-July. Shipments from this area increase rapidly to a peak movement by mid-June (almost one-quarter of the season's total being shipped during June 21–30) and decline substantially with each subsequent ten-day period. In contrast,

Table 3. Destination of Interstate Shipments and Unloads at 64 Cities, California Plums, Cars, 1929–1947.

| Region * | 1929–1933 | 1934–1938 | 1939–1943 | 1944–1947 |
|---|-----------|-----------|-----------------|-----------|
| Destination of interstate carlot shipments† | | | | |
| Domestic | | | | |
| North East..... | 1,669 | 1,720 | 1,632 | 1,457 |
| North Central..... | 1,767 | 1,232 | 1,500 | 2,261 |
| South..... | 144 | 146 | 212 | 331 |
| West..... | 132 | 103 | 93 | 126 |
| Total..... | 3,712 | 3,203 | 3,437 | 4,175 |
| Exports..... | 249 | 374 | 280 | 368 |
| Total..... | 3,961 | 3,577 | 3,717 | 4,543 |
| Unloads at 64 cities‡ | | | | |
| Domestic | | | | |
| North East..... | 1,260 | 1,368 | (not available) | 2,031 |
| North Central..... | 634 | 624 | | 987 |
| South..... | 121 | 115 | | 276 |
| West..... | 27 | 29 | | 52 |
| Total..... | 2,042 | 2,136 | | 3,346 |

* The regions correspond to those used by the U. S. Bureau of Census.

† Not corrected for diversions.

‡ Incomplete since data are not compiled for all stations at which plums are unloaded.

shipments from Placer District move approximately two weeks later and extend over a longer period of time. This comparison in the shipment of plums should not be assumed to imply that for each variety shipments from San Joaquin Valley precede those from other areas by two weeks. Actually, the first shipping dates for the different varieties from this area lead those of other districts by only a few days. The difference in seasonal movement of all plums is largely due to the fact that in San Joaquin Valley a larger proportion of the total shipment consists of the earlier maturing varieties than is the case for other districts.

This contrast in seasonal pattern of interstate movement assumes particular importance because of the difference in trend of shipments from the various districts. As might be expected from the

discussion of acreage given above, substantial shifts in the relative volume shipped from the different producing areas are taking place—see figure 5. Interstate shipments from Sacramento Valley declined steadily throughout the past two decades from about 1,000 to 250 cars. Except for year-to-year fluctuations, out-of-state shipments originating in the Placer District continued at an average of approximately 1,700 cars. For San Joaquin Valley, shipments remained at an average of 1,200 cars until 1935 and then increased rapidly to a volume approximately twice as large for 1944–1948. In addition, a small volume of plums is shipped from the minor plum-producing areas of the state. Thus on a relative basis, shipments from Sacramento Valley and Placer District decreased from 25 to 6 and 43 to 39 per cent of the total state

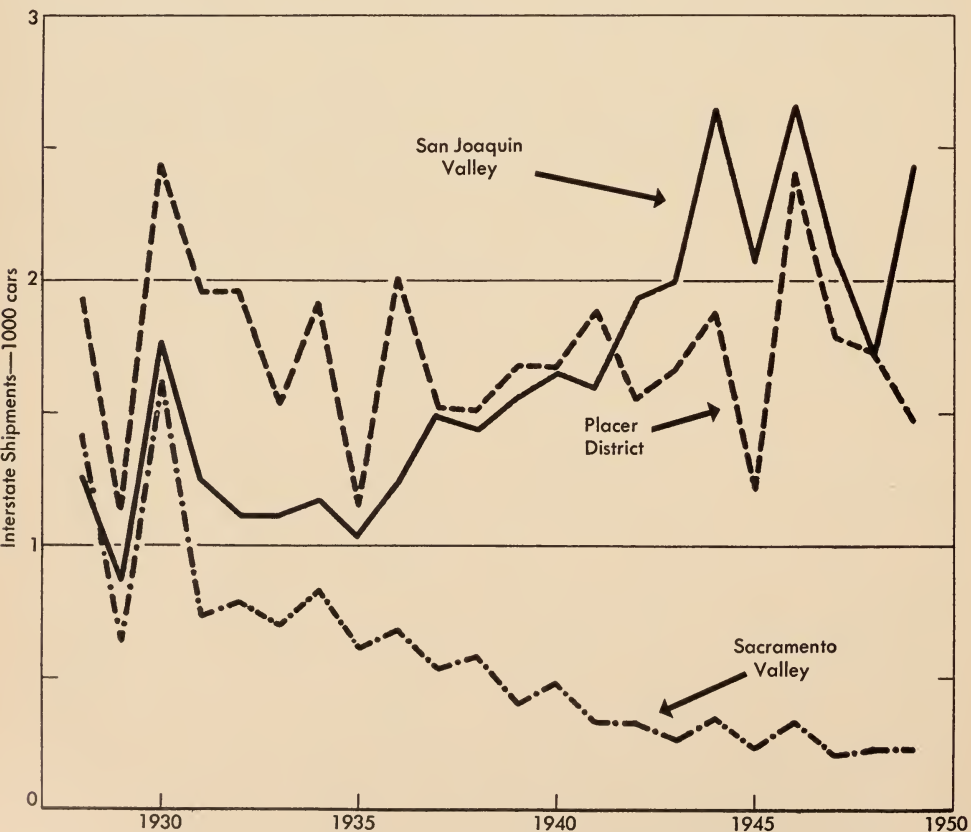


Fig. 5. Interstate Shipments by Districts, California Plums, 1928 to 1949.

Table 4. Interstate Carlot Shipments of California Plums by Varieties and Size, 1935-1948.

| Variety (in order of season of shipment) | Average shipments | | | Size distribution, 1941-1946 | | | | | Plums per crate * | | | |
|---|-------------------|-----------|-----------|------------------------------|-------|-------|-------------------------|--------------------|-------------------|--------|--|--|
| | 1935-1937 | 1939-1943 | 1944-1948 | 4 X 4 and larger | 4 X 5 | 5 X 5 | 5 X 6 and smaller | Non-crate packs | Weight | Number | | |
| | | | | Per cent of variety total | | | | | | | | |
| | | | | Pounds | | | | | | | | |
| Beauty..... | 437 | 472 | 593 | 2 | 35 | 57 | 5 | 1 | 27.2 | 260 | | |
| Santa Rosa..... | 592 | 1,010 | 1,317 | 15 | 54 | 26 | 1 | 4 | 27.9 | 232 | | |
| Duarte..... | 229 | 450 | 539 | 11 | 56 | 31 | 1 | 1 | 27.8 | 235 | | |
| President..... | 256 | 312 | 363 | 20 | 53 | 20 | 1 | 6 | 28.2 | 223 | | |
| Four varieties..... | 1,514 | 2,244 | 2,812 | 12 | 50 | 33 | 2 | 3 | 27.8 | 237 | | |
| Tragedy..... | 195 | 169 | 156 | † | † | 35 | 56 | 9 | 25.7 | 323 | | |
| Wickson..... | 282 | 235 | 214 | 66 | 24 | 1 | 0 | 9 | 29.5 | 188 | | |
| Burbank..... | 180 | 147 | 136 | 19 | 64 | 14 | † | 3 | 28.2 | 220 | | |
| Kelsey..... | 168 | 184 | 176 | 57 | 21 | 1 | 0 | 21 | 29.4 | 189 | | |
| Four varieties..... | 825 | 735 | 682 | 39 | 24 | 12 | 14 | 11 | 28.3 | 227 | | |
| Other varieties..... | 897 | 683 | 857 | .. | .. | .. | .. | .. | .... | ... |  |  |
| All varieties..... | 3,236 | 3,662 | 4,351 | 18 | 44 | 28 | 5 | 5 | 27.9 | 236 | | |
| Plums per crate..... | ..... | ..... | ..... | 176 | 224 | 280 | 340 | .. | .... | ... |  |  |
| Pounds per crate..... | ..... | ..... | ..... | 30.0 | 27.7 | 26.9 | 25.1 | .. | .... | ... |  |  |
| Plums per pound..... | ..... | ..... | ..... | 5.9 | 8.1 | 10.4 | 13.6 | .. | .... | ... |  |  |

* Weight (or number) per crate for each size weighted by percentage distribution of shipments. Refers only to portion of crop packed in crates.

† Less than 0.5 per cent.

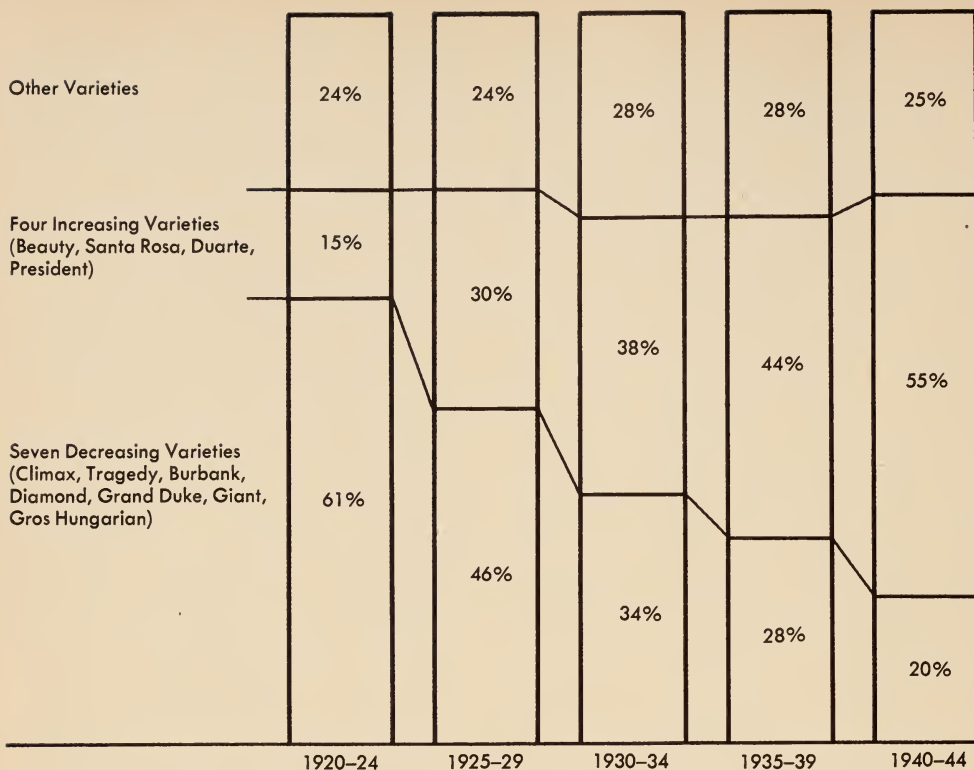


Fig. 6. Shift in Varietal Composition of New York Auction Sales, California Plums, 5-Year Averages, 1920 to 1944.

shipments respectively, while those from San Joaquin Valley rose from 31 to 53 per cent.

Shipment by Varieties. The varietal distribution of interstate shipments is closely correlated with the relative production of the different varieties since only a few of the less important varieties are used principally for processing or for intrastate fresh sales. The California Tree Fruit Agreement has compiled out-of-state shipments, by varieties, from shippers' manifests furnished in compliance with requirements of the marketing agreement program. Such data, summarized in table 4 (page 15), are available for the period since 1935, except for the 1938 season when regulations were not issued. To get an indication of shifts in the relative importance of the different varieties extending over a longer period, auction sales data must be used.

The extent of the change in the varietal

composition of sales at out-of-state markets is shown in figure 6. Although this chart refers to sales at the New York auction only, it presents a representative picture.

Reference to table 4 shows that the recent increase in out-of-state shipments is due entirely to the four leading varieties. Their shipment has almost doubled since 1935-1937 from an average of 1,500 to 2,800 cars. For all other plums, shipments declined slightly from 1,700 to 1,500 cars and, as a consequence, their relative importance has decreased considerably.

Size Distribution of Shipments. Plum sizes vary from year to year. Furthermore, the size distribution of interstate shipments is modified somewhat during years when size and grade regulations are issued under the marketing agreement. Data gathered for the period 1941-1946, as summarized in table 4, clearly indicate the variation in sizes for the important

varieties and the differences in average sizes of these varieties. This variation in size distribution has a direct bearing on the net weight per crate.

On the basis of data available for the 1944 season (the only information currently available) some interesting comparisons can be made. There is a five-pound (or 20 per cent) difference in net weight between plums packed in a 5 × 6 crate (25.1 pounds) and those in a 4 × 4 crate (30.0 pounds). The actual difference is about four pounds per crate be-

tween the average net weight for small varieties (such as Tragedy, Sugar, and Diamond) and the larger size plums (such as Formosa, Gaviota, Kelsey, and Wickson). Another way of indicating the difference is by comparing the number of plums per crate—about 300 for the small varieties versus 190 for large varieties. Such differences in net contents are, of course, important in explaining part of the price differentials prevailing between different varieties and size designations.

Auction market figures give some clues to price trends

By Markets. This discussion of auction marketings is oriented to sales of plums packed in standard four-basket crates, because about 95 per cent of the plums shipped from California are packed in this container (averaging about 28

pounds in net weight). From the data presented in table 5 it appears that usually about 30 per cent of these shipments are to the New York auction market, 35 per cent to the other eleven auction markets, and 35 per cent to private sales

Table 5. Auction Prices and Distribution of Sales for California Plums by Markets, 1935–1949.

| Market | 1935– 1939 average | 1940– 1944 average | 1946– 1949 average | 1945 | 1946 | 1947 | 1948 | 1949 |
|--|--------------------------|--------------------------|--------------------------|-------|-------|-------|-------|-------|
| Auction price—dollars per standard crate | | | | | | | | |
| New York auction | 1.49 | 2.56 | 3.27 | 3.43 | 3.05 | 3.69 | 3.48 | 2.91 |
| Twelve auctions | 1.46 | 2.51 | 3.23 | 3.41 | 3.00 | 3.61 | 3.43 | 2.87 |
| Sales—1,000 equivalent crates * | | | | | | | | |
| Auction markets | | | | | | | | |
| New York | 982 | 1,106 | 1,190 | 317 | 1,342 | 1,071 | 1,162 | 1,185 |
| Chicago | 307 | 343 | 380 | 45 | 428 | 312 | 401 | 379 |
| Philadelphia | 236 | 290 | 319 | 48 | 372 | 260 | 306 | 338 |
| Boston | 225 | 222 | 179 | 52 | 249 | 136 | 166 | 165 |
| Four major markets | 1,750 | 1,961 | 2,068 | 462 | 2,391 | 1,779 | 2,035 | 2,067 |
| Eight minor markets | 417 | 434 | 489 | 120 | 579 | 397 | 426 | 554 |
| All markets | 2,167 | 2,395 | 2,557 | 582 | 2,970 | 2,176 | 2,461 | 2,621 |
| Private markets † | 1,095 | 1,570 | 1,886 | 2,997 | 2,319 | 2,290 | 1,317 | 1,617 |
| Out-of-state shipments ‡ | 3,262 | 3,965 | 4,443 | 3,579 | 5,289 | 4,466 | 3,778 | 4,238 |

* Total of sales in all containers with boxes and lugs converted to crates by factors 0.667 and 1.000.

† Difference between auction sales and out-of-state shipments.

‡ Data not reported for 1938. The 1935–1939 average includes a figure of 3,475 for 1938 estimated on the basis of utilization data.

markets (including exports, chiefly to Canada). The impact of price control in reducing movement through auction markets, especially during 1945, is shown very clearly by the data of this table.

Generally, when the crop is small a larger proportion of the total domestic shipments is sold as private transactions. This is because buyers wish to assure themselves of adequate supplies, and therefore are anxious to conclude f.o.b. purchases. A similar anxiety is apparent as shipments begin for the different varieties, especially for those sold by mid-season, almost regardless of whether the total supply available is large or small. Thus, auction sales, on the average, represent about 50 per cent of Santa Rosa plums (which are shipped early in the season, in spite of the fact that this variety constitutes over one-quarter of the total shipments); 60 per cent of Beauty and Duarte plums (two other early varieties making up another quarter of total shipments); and almost 75 per cent of all other varieties (which are usually sold during the middle or latter part of the plum season and include the remaining half of total shipments). For varieties shipped in large volume there is a definite tendency for the smaller auction markets to secure a greater relative supply. For example, about 60 per cent of the auction sales of the three highest volume varieties in interstate shipments (Beauty, Santa Rosa and Duarte) are made at auction markets other than New York, compared to an average of 50 per cent for all other varieties.

Table 5 shows that generally the New York auction price, on a seasonal basis, is a few cents per crate above the average received at other auction markets. This differential is less pronounced when prices at the various auction markets are compared on a varietal or weekly basis. Data on private market prices are not published, so a direct comparison between those prices and auction prices is

not possible. Information secured from records of several large shippers of California plums, however, indicates that New York auction prices may be used as a good indicator of differences in prices by varieties, sizes, and weeks of season and that prices at this market can be taken as representative of the general level of wholesale prices.

Comparison of prices for plums packed in different containers will be covered briefly by mention of differentials prevailing on the New York auction market. Plums packed in lugs average 7 per cent below the crate price, which just about represents the difference in net weight of the two containers. Prices of plums packed in boxes average 25 per cent less than those sold in crates compared to a reduction of 35 per cent in net weight. The somewhat higher price per pound for these plums represents a premium paid for the larger sizes.

Prices vary considerably for different sizes of plums. For example, in 1947 when the price of medium and large plums packed 4×5 was approximately \$3.50 per crate, the premiums for 3×4 and 4×4 plums were \$1.40 and \$1.00 respectively, and the discount for 5×5 plums was \$.80. For small varieties, the discounts were \$.30, \$.70 and \$1.60 for 5×5 , 5×6 and 6×6 sizes. The large differential in prices between large and small sizes reflects both a consumer preference for the larger plums and the heavier net content of crates packed with larger sizes. The 4×4 pack contains 20 per cent more weight than the 5×6 pack compared to a price differential of almost 100 per cent. Thus on a per pound basis the premium in 1947 is reduced to approximately 50 per cent. Such price differentials are of vital concern to plum growers and shippers because of the rigid nature of the margin between grower and auction prices. As the average level of plum prices at wholesale declines (and marketing charges decrease at a much slower rate)

net returns realized for small sizes are reduced sharply and even disappear entirely.

By Varieties. Varietal differences in terminal market prices and sales can be shown by considering New York auction

prices and sales. These comparisons for fifteen individual varieties and "other varieties" are presented in figure 7 by five-year averages since 1920-1924. The data plotted represent the prices of each variety expressed as a per cent of the

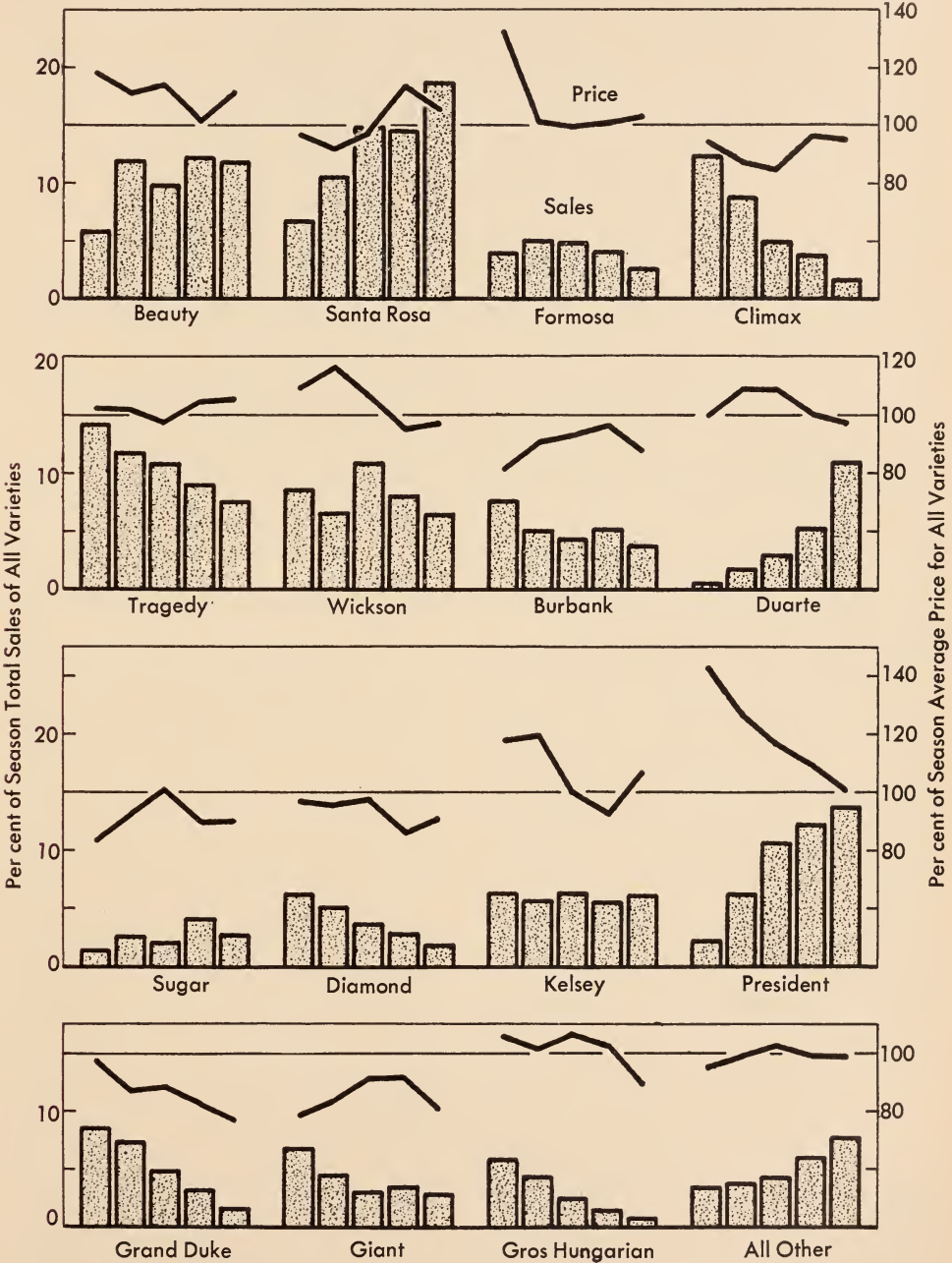


Fig. 7. California Plums, New York Auction Sales and Prices, by Varieties, 5-Year Averages, 1920 to 1944.

season average price for all varieties and varietal sales as a per cent of sales of all plums. This procedure was followed in order that changes in the relative price for any variety could be noted as its sales (relative to all plums) were altered.* It will be noted that the patterns of price changes bear no relation to shifts in volume of sales for the different varieties. In some cases changes in relative prices and sales are in opposite directions; for other varieties they show the same trends (either upward or downward). In using the price lines in figure 7 for making comparisons as to premiums and discounts for individual varieties allowance should be made for the fact that the net weights vary considerably among varieties (as shown in table 4).

In view of the number of varieties under consideration, it may be well to mention the three varietal groups, each representing 25 to 40 per cent of the total auction sales. For this purpose, the sixteen major commercial varieties are classified as early, midseason, and late season plums. Sales of early varieties (Beauty, Santa Rosa, Climax, and Formosa), confined largely to June and early July, are practically completed before substantial quantities of other plums arrive on the market. About two-thirds of the volume of midseason varieties are sold during the period from mid-July to mid-August. By the end of this period, late plums are beginning to arrive in large volume and

continue in plentiful supply until the close of the plum season in late October. Thus, there is a distinct separation of the marketing seasons for these three varietal groups. The extent to which these groups are sold at different periods during the season is clearly apparent from the data portrayed in figure 8, which refers to the average for 1940-44. A similar picture is revealed for earlier years. Only during two weeks of the season (weeks 7 and 11) do sales include substantial quantities of plums representing different varietal groups.

The course of New York-Chicago auction sales and prices for the period since 1922 appears in figure 9. Fluctuations in auction prices for the three varietal groups are similar, although a number of differences in year-to-year changes may be observed. Auction sales have not increased rapidly for any of the three categories. The relative volume of sales remained approximately constant during the past twenty-five years, except for a slight decrease in the volume of late plums sold. Sales of minor varieties, excluded from the above, continued at about 2.5 per cent of the total quantity of all plums marketed until an expansion in relative importance began about a decade ago. At present they constitute 6 per cent of all sales.

The different varieties reach maximum sales in a series of peaks, separated one from another by about a week. In the case of most varieties about two-thirds of their season sales are made within a period of two or three weeks. This concentration of heavy movement is apparent even when each producing area is considered separately. For the four varieties whose sales are increasing rapidly (Beauty, Duarte, President, and Santa Rosa), there is a definite tendency for sales to be spread over a longer period than formerly. This dispersion is due mainly to the large increase in shipments from San Joaquin Valley made at an earlier date. For the remaining varieties no such shift is ap-

* Sales at the New York auction market represent about one-third of all plums shipped from California, and the prices received can be presumed to reflect adequately price differentials between varieties. The volume of sales also indicates changes in relative importance of the different varieties. Since sales at auction markets have gradually increased in proportion to total shipments and the general level of prices has changed considerably during the past thirty years, long-run shifts can be more accurately indicated by converting actual figures to percentages. Comparable data are available for the other auctions, covering the period since 1922 in the case of the Chicago market. Since the results indicated by consolidating New York and Chicago data are almost identical when five-year averages are used, the information presented is limited to data for New York.

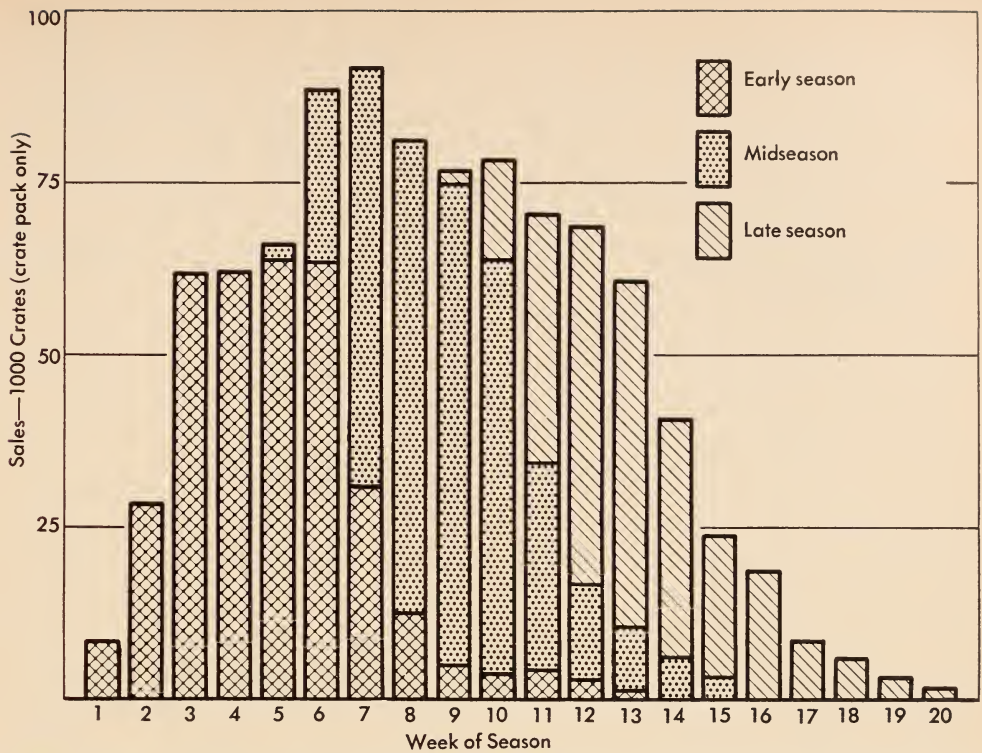


Fig. 8. Weekly New York Auction Sales of California Plums by Varietal Groups, 1940-44 Average.

parent. In fact, for some varieties the opposite change occurs, probably because of a restriction in the producing area.

By Weeks. The weekly patterns of marketings for individual varieties have not been altered much during the past thirty years. Some changes occurred, however, because of shifts in the relative production of a particular variety among the different areas, as shown above. At the same time some varieties, particularly Santa Rosa, are being stored in increasing quantities for sales later in the season. The modification in the seasonal pattern of total sales, however, is due principally to shifts in the relative shipments of the different varieties. As stated, the different varieties reach maximum sales in a series of peaks, separated by about a week. For most varieties the bulk of the sales are made within a period of 2 or 3 weeks. As the relative importance of the several varieties changes, the seasonal distribution of total plum sales is altered.

The net effect of the changes in the relative volume of the different varieties sold has been to level out the seasonal distribution of plum sales and, as a result, to reduce the seasonal variation in prices. The premium for early sales has been reduced, the premium for late sales has disappeared, and the midseason discount has been considerably decreased. Such changes in weekly prices, the result of changing patterns of relative supplies, are of particular concern to producers whose plums reach the consuming markets chiefly during one or another of the subperiods of the plum season.

**Please turn to
page 22 for
Figure 9**



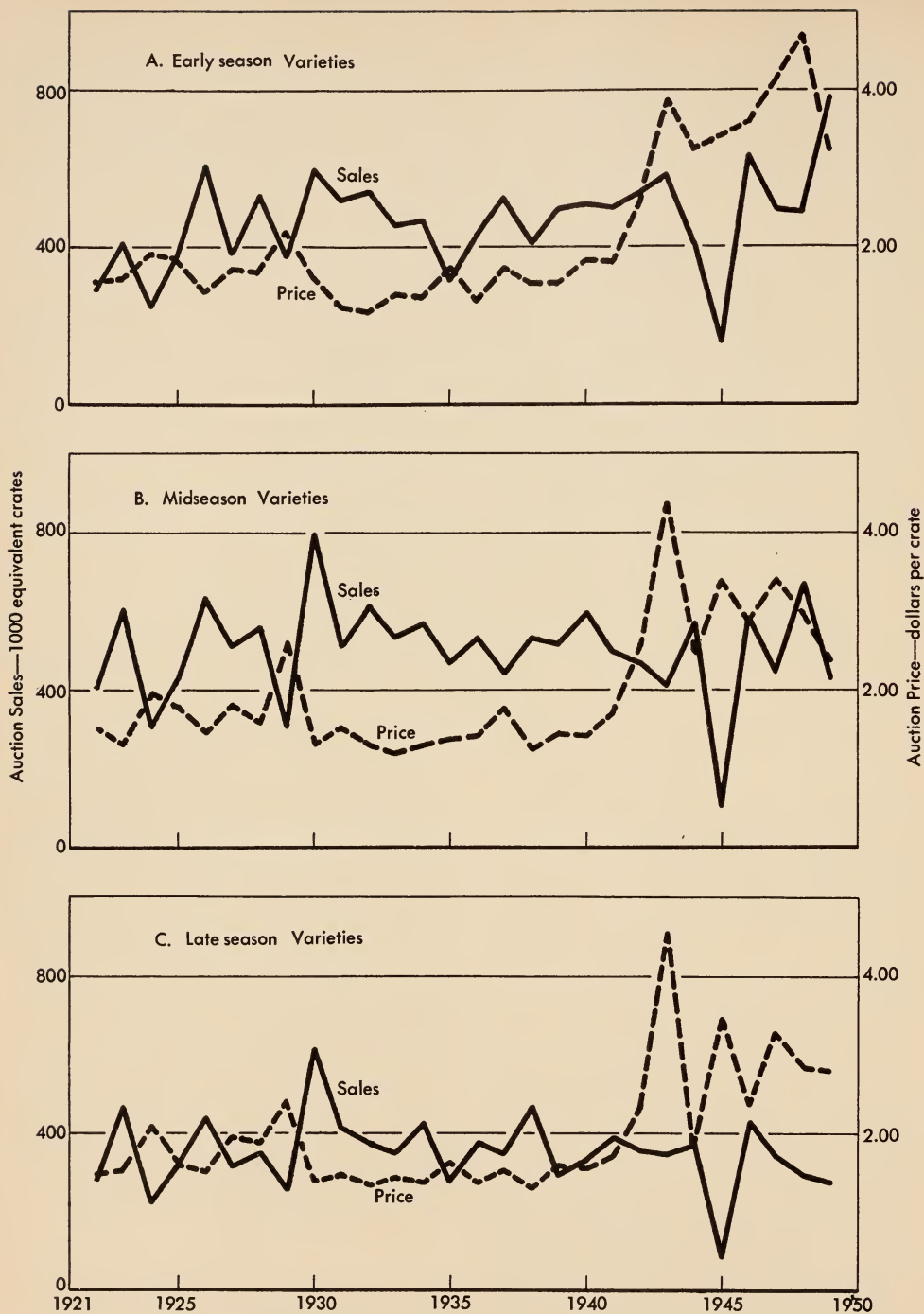


Fig. 9. New York-Chicago Auction Sales and Prices by Varietal Groups, California Plums, 1921 to 1949.

Grower prices—their past tendencies are explored

General Level. The average prices received by California plum producers have varied widely over the past several decades. The 1943 crop was sold for the highest average price, \$147 per ton, compared to the lowest returns of \$19 received in 1932.

From 1909 to 1948, plum prices (for naked fruit at the first delivery point) averaged \$60 per ton and fluctuated generally between \$40 and \$75—though lower or higher prices were received in some seasons. Prior to about 1930, however, demand for fruits and vegetables generally was rising and extremely low farm prices prevailed only when bumper crops were produced and marketed. By 1930–1932 this situation was drastically changed. There was a serious divergence between supply and demand. In the case of plums, the farm price dropped precipitously from \$72 per ton in 1927–1929 to an average of \$28 for 1930–1932. Prices increased, but only gradually during the next decade, to \$50 in 1941, and then rose sharply to approximately \$115 for 1943–1948. The high level of farm prices prevailing during the 1940’s, when the production of plums and competing fruits was appreciably above those of

previous years, suggests that the level of consumer purchasing power should be considered as a very important factor responsible for price variations.

A general indication of the relation between variations in farm prices of plums and fresh sales and nonagricultural income can be secured from the data summarized in table 6. During the period 1919–23 to 1944–48 U. S. population increased from 84 to 109 per cent of the average for 1935–39. Consequently, fresh sales and nonagricultural income increased considerably less rapidly on a per capita basis. It will be noted that when fresh sales remained approximately constant (during the middle portion of this period) the decline in farm prices was roughly parallel to the decrease in non-agricultural income. This type of comparison, however, is quite limited. Further comment on factors affecting prices is deferred to a later portion of the circular.

Farm prices are not available on a varietal basis. Some indication of how prices for different varieties sold fresh have changed relative to each other can be secured by subtracting marketing charges from auction prices. Adjustments for variations in the net contents of the crate

Table 6. Average Farm Prices for California Plums Related to Fresh Sales and Nonagricultural Income, 1919–1948.

| Average for: | Farm price of Calif. plums | Fresh sales, Calif. plums | | Nonagricultural income | |
|--------------|----------------------------|---------------------------|------------|------------------------|------------|
| | | Total | Per capita | Total | Per capita |
| | | 1935-1939 = 100 | | | |
| 1919-23..... | 191 | 78 | 93 | 89 | 106 |
| 1924-28..... | 162 | 95 | 104 | 112 | 123 |
| 1929-33..... | 117 | 94 | 103 | 95 | 99 |
| 1934-38..... | 99 | 99 | 100 | 96 | 97 |
| 1939-43..... | 197 | 109 | 106 | 152 | 147 |
| 1944-48..... | 311 | 127 | 116 | 267 | 254 |

and for differences in marketing charges, if any, would be necessary. This information is not being presented since it is felt that by referring to the material given on auction marketings suitable comparisons can be made.

By Outlets. The highest price is received for plums shipped to interstate fresh markets and the lowest for those canned. Prices for plums sold fresh within the state generally are considerably below prices for interstate sales. They averaged 25 to 30 per cent less during 1909-1929 and about 15 per cent less thereafter. In 1944 and 1945 intrastate prices were somewhat above those received in interstate markets. This was probably due to the severe hail and wind damage to plums occurring during the former year and to the operation of effective OPA price ceilings in the latter. The price differential between sales in these two fresh outlets may be expected to continue to narrow in the immediate future as a relatively larger proportion of the total crop is marketed fresh within the state. If, however, regulations issued under the marketing control program serve to widen the usual spread between the grade-size composition of plums shipped to out-of-state markets and the composition of those sold locally, the price differential may become greater instead of smaller.

Considerably lower prices usually are paid for plums used by processors. Ordinarily the cannery price is 25 to 50 per cent below that established for fresh sales. Still lower prices were received during 1943-1947 for plums frozen and crushed—75 and 25 per cent, respectively, of the cannery price. This does not necessarily mean that growers producing plums for the processing outlet earned a lower net return per acre. Varieties used for canning generally yield a larger tonnage and require somewhat different (and presumably cheaper) cultural practices. To make a valid comparison of the relative profitability of producing cannery plums

and those sold fresh, information on relative yields and costs as well as prices would be required.

Factors Affecting Prices. There appears to be a definite relation between the consumer's income and his consumption of plums. Separate studies for plums have not been made, but it is felt that the general pattern revealed for other fresh fruits is applicable. For this reason it is of interest to indicate the relationship of one of these expenditure studies. The results, showing per capita consumption of fresh noncitrus fruits by income categories of nonfarm families in 1941, are summarized in table 7. This tabulation, which agrees with findings secured from other similar studies, shows that as family income increases, the consumption of fresh fruits also increases.

In addition there is a relationship between the availability of plums in stores and the size of the city. According to a recent survey conducted by the Department of Agriculture (August 1949), plums are more generally available in the larger cities. For example, in cities of over 500,000 population almost half (43%) of the food stores had plums for sale compared to one quarter (23%) of the food stores in cities under 10,000.

A study of quite a different type has been made to determine the principal fac-

Table 7. Consumer Income Related to Purchases of Fresh Noncitrus Fruits, 1941.

| Income level of nonfarm families (dollars per year) | Consumption of fresh noncitrus fruits (pounds per year) |
|---|---|
| Under 500..... | 42 |
| 500 to 999..... | 70 |
| 1,000 to 1,499..... | 92 |
| 1,500 to 1,999..... | 112 |
| 2,000 to 2,999..... | 131 |
| 3,000 to 4,999..... | 160 |
| 5,000 and over..... | 248 |

tors responsible for variations in auction prices during the period 1922–1948.* Although this statistical analysis cannot be discussed here, it may be well to summarize the major findings:

(1) An increase in nonagricultural income was associated on the average, when other factors remained constant, with a substantial increase in auction prices. The influence of this force became weaker as the season advanced.

(2) Likewise, a decrease in the volume sold was accompanied on the average by an increase in auction prices—when the effect of other factors was held constant.

(3) Sales during successive time periods are definitely interrelated in the sense that current prices are affected by

sales made earlier during the season, as well as by current marketings.

(4) Supplies of other fruits, especially those marketed more or less simultaneously, have a definite but not large influence upon plum prices. For example, changes in supplies of early peaches (from Southern states) are related to variations, in the opposite direction, in auction prices for midseason plums.

(5) Plums of different sizes are close substitutes for one another. Plums of one size may be substituted for those of another size without materially affecting the prices received.

(6) Price is considerably more responsive to changes in sales during the peak of the season than earlier or later.

The outlook indicates changes in relative varietal prices

Growers are vitally concerned in the prices realized at terminal markets because the levels prevailing there determine farm prices. The statistical analysis just mentioned indicates that auction prices are influenced mainly by the level of consumer purchasing power and the volume sold.

As indicated, a substantial increase in plum production and, therefore, in the volume available for shipment to eastern markets appears probable in the next few years. Of course, if existing acreage is drastically reduced, the larger crop will not be forthcoming but a large curtailment in acreage would be necessary to reduce production below the average for recent years. If production continues to expand in the pattern presumed in this report, the volume available for interstate shipment will be increased considerably and will have a price-depressing

influence on the average auction price. A forecast, or even a rough estimate, of the course of consumer purchasing power for the future cannot be made with any degree of confidence. In the event that it does recede from the current high level, auction prices for plums will tend toward lower levels.

Costs incurred for marketing services—which start with hauling the plums to the packing shed and end when the fruit is sold at terminal markets—must also be considered when discussing farm prices. These charges are substantial. For example, during the interwar period about 70 per cent of the auction price was required to cover marketing charges and 30 per cent remained to pay the grower for all expenses involved in producing plums. They tend to be fairly rigid. At least marketing charges decline more slowly when farm prices decline. This means that as terminal market prices are decreased prices to farmers are depressed at a more rapid rate. Thus in 1949 the auction price for plums decreased 15 per cent below

* See Foytik, Jerry. "The California Plum Industry: An Economic Study," Chapter IV. (Berkeley, September 1949, typewritten).

the average for the preceding four seasons compared to a decline of 40 per cent in the farm price.

Finally, attention should also be called to the fact brought out early in this report that a larger proportion of the plums shipped to interstate fresh markets probably will consist of early varieties. As a result the pattern of prices between varieties and weeks of the season which exists

at present will be further modified in the direction of continuing the general trends noticed for the past two or three decades. It appears that prices of some varieties, notably Santa Rosa, Duarte, President, and possibly Beauty, may decrease relative to the average for all varieties. At the same time prices for some of the currently less important varieties are likely to improve relative to the prices for the major varieties.

The tables and figures appearing in this circular are summaries of more detailed tables, which are published in a separate Statistical Supplement in mimeographed form and which give the sources in detail. This supplement can be obtained by writing to the Giannini Foundation of Agricultural Economics, University of California, Berkeley 4.

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